

Medicinal Nitroglycerin Management

FACT SHEET 37-072-0918

What is Medicinal Nitroglycerin and where is it found?

In its pure form, nitroglycerin poses many hazards. Having the synonyms nitroglycerol, glyceryl trinitrate, trinitroglycerin, and explosive oil, this pale yellow, viscous liquid is extremely dangerous because it is highly explosive and flammable, and it is highly sensitive to shock and heat. It is soluble in ethanol and ether, and slightly soluble in water.

Nitroglycerin, when used at medicinal concentrations, is a vasodilator (a medication that dilates blood vessels), and is frequently used in the management of angina pectoris (cardiac chest pain) and to produce controlled hypotension during surgical procedures. It is available for injection, for intravenous (IV) administration, in extended release tablets, sublingual tablets, ointment, dermal patches, and spray. In some of these applications, not all of the medication is delivered during administration, thus leaving a residual waste.

Is Medicinal Nitroglycerin a Federal Hazardous Waste?

The chemical nitroglycerin appears on the P-list of the Resource Conservation and Recovery Act (RCRA) with the Waste Code P081 [40 CFR, Section 261.33(e)]. Over the last couple decades, the U.S. Environmental Protection Agency (EPA) clarified its management stance regarding medicinal nitroglycerin. In April 1995, the EPA issued a policy stating that they considered discarded, unused nitroglycerin patches as manufactured articles and did not classify this item as an unused, discarded, commercial chemical product having a P-listed hazardous waste classification. The EPA defined commercial chemical products as commercially pure and technical grades of the listed chemicals, or chemical formulations in which the listed chemical is the sole active ingredient (54 FR 31335, 31336 July 28, 1989). The April 1995 clarification pertained only to nitroglycerin patches.



Later modifications to the RCRA mixture and derived from rules further changed the management of unused medicinal nitroglycerin. A 16 May 2001 EPA Memorandum excluded all P- and U-listed wastes that are listed solely for an ignitability, corrosivity, or reactivity characteristic once they no longer exhibit that characteristic. The EPA Nitroglycerin (P081) is listed solely for reactivity. Medicinal nitroglycerin does not exhibit the reactivity characteristic. Therefore, medicinal nitroglycerin itself is not a U.S. Federal Hazardous Waste. However, medicinal nitroglycerin could be combined with other hazardous wastes (e.g., dispensed in solutions that are greater than 24% alcohol or held within a compressed gas delivery system). In this case, the resulting waste would be hazardous waste.

How should Medicinal Nitroglycerin be disposed?

Medicinal nitroglycerin may be disposed by incineration in an approved incinerator with adequate pollution control devices for the removal of nitrogen oxides or placed in a permitted sanitary landfill. Syringes containing residual medicinal nitroglycerin should be managed as regulated medical waste. Unopened medicinal nitroglycerin in the original packaging can be returned through a reverse distribution program.

All applicable state, host nation, and local regulations must also be recognized and applied. For example, as of this publication, Maine includes medicinal nitroglycerin wastes as State Hazardous Waste; Michigan includes them as Universal Waste: California includes them as Medical Waste; and Washington State includes them as State Dangerous Wastes.

Contact the local environmental office to determine the proper disposal of non-hazardous, medicinal nitroglycerin.